

PhilMont Mobile Radio Club

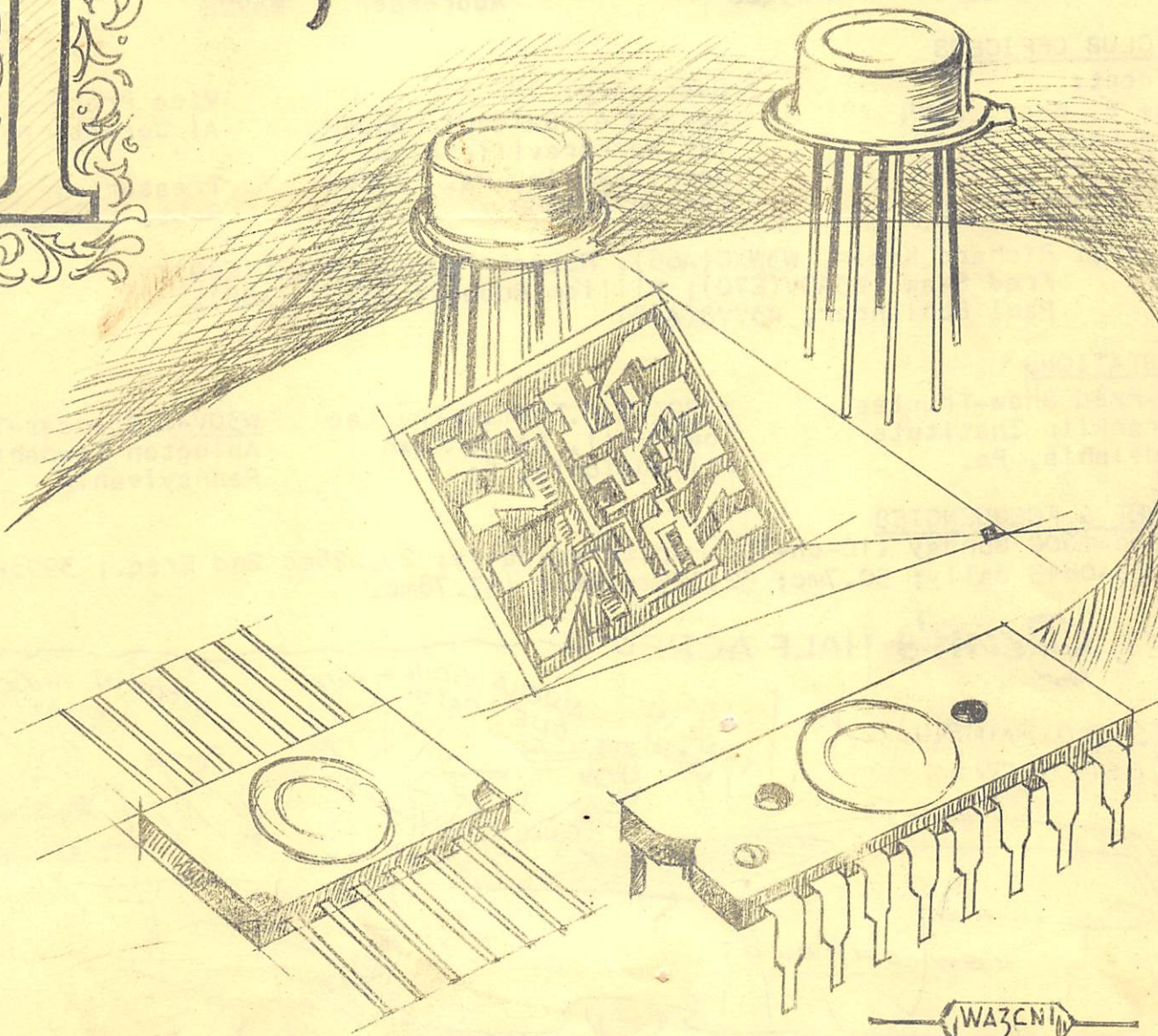
The BLURB

SEPTEMBER

1968

• W3QV • W3TKQ • W3RQZ •

Integrated circuits



W3CNI

The BLURB is published monthly by and for the members of the Phil-Mont Mobile Radio Club, Inc. Our purpose is to further the interest of amateur radio in general and mobile radio in particular. We endeavor to keep the news accurate, interesting and educational. Copying and quoting is permitted, with a credit line and we gladly exchange subscriptions with other clubs.

DEADLINE: All material must be in the hands of the Editor before the 10th of the month preceding issue. The BLURB is mailed on the 1st Monday of each month.

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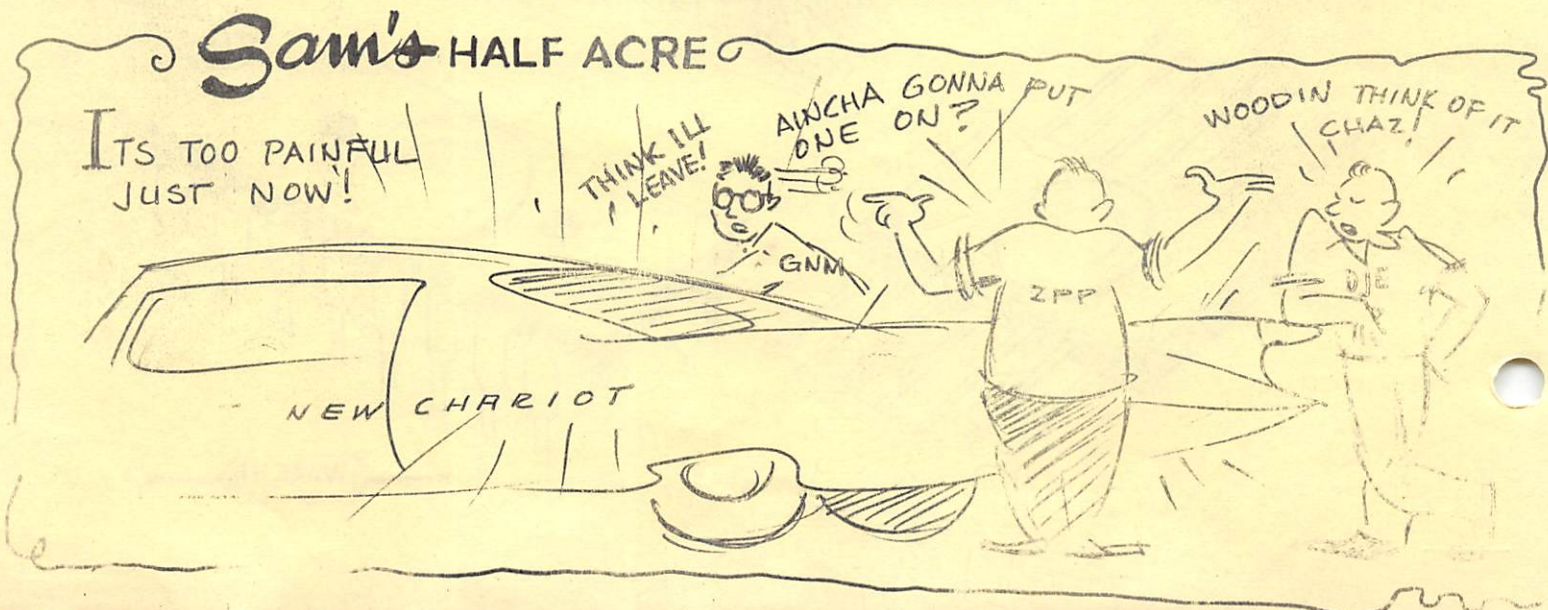
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CLUB NET & FREQUENCIES

29.493mc-1000 Sunday (10-on-10) monitored daily; 29.626mc 2nd Freq.; 3993kc
SSB-0730-0845 daily; 50.7mc; 52.525mc(FM); 147.78mc.



THE PREZ SEZ

According to the latest count, Philmont has 125 members. This figure represents a formidable collection of talent. Perhaps you would like to build a tasty spaghetti sauce, hook a rug, build a model railroad or carve a pipe. Believe it or not, these and many more are the abilities of the realm. In the field of amateur radio, our group is without peer.

This is all by way of pointing out that there is really no excuse for some of us stewing in our own juice when it comes to getting up a better antenna or better than 10% out of that old 807. Pride is often the great problem—not the antenna or rig.

As a friendly suggestion from your fearless leader, why not break down and bring your problem before one of our egg heads. They are quite nice fellows, only too happy to help. Think of the boost you will give their ego. Also, think of how nice it will be to call CQ and get maybe an answer.

73, W3KN

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THE EDITOR'S VIEW

Finding out who is a member of Phil-Mont is something of a chore. ED discovered this while compiling a membership list in preparation for issuing a new club Directory. The Treasurer had a list that was almost complete, but lacked some names that we knew should be on it. The Membership Committee only had information on new members. The Blurb mailing list includes just about as many non-members as members, and they are not easy to separate, so we drew zilch there, too. There was the old Directory but that hardly reflected current membership status. Finally, after considerable research, a list was compiled that has been agreed by all to be the Official Authentic Certified-Accurate Membership List with the hope that no one was omitted.

It appears to ED that the Membership Committee should be responsible for maintaining an accurate, up-to-date listing of members. The list would be based on information received from the Treasurer but mutual benefit could also be derived by consultation with the Blurb mailing department for the exchange and up-dating of addresses. A useful byproduct (or, spinoff, as they say in the aerospace biz) of this scheme would be the ease with which future Directories could be issued by the Membership boys on a regular basis.

If you have any thoughts on this subject come around to the next midmonth, and maybe we can develop a self-perpetuating system to place our present lash-up.

W3QZQ

PHIL-MONT CALENDAR

Monday	September 9	Regular Meeting, Franklin Institute Program: Thick Film Hybrid Micro- circuits.
Sunday	September 15	Deadline for October Club material.
Wednesday	September 18	Midmonth Meeting at KSPHC
Monday	October 7	Regular Meeting, Franklin Institute Program: Auction

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SEPTEMBER PROGRAM * SPECIAL FEATURE * DON'T MISS IT

Mr. Albert E. Linden will present a dissertation on September 9, 1968, entitled "Thick Film Hybrid Microcircuits." This presentation will describe the differences between integrated circuits, thin film, thick film and the new LSI (Large Scale Integration) microcircuit technologies, and the fabrication steps necessary to produce Thick Film Hybrid Microcircuits. Slides will be shown and hardware will be available for your inspection.

Mr. Linden has been involved in the field of Microelectronics for approximately 10 years and has worked in numerous phases of microcircuit technology development. He has been a member of the Electronic Industries Association Advisory Board on Microelectronics and has served as an officer of their Committee on Physical Characterization of Microelectronics. He is a member of the IEEE, the Institute of Printed Circuits, the Franklin Institute, and received his BSEE in 1949. His present position is as Manager of Microelectronics Engineering, for the General Electric Missile and Space Division, at Valley Forge, Pennsylvania. In 1962, Mr. Linden wrote a book entitled, "Printed Circuits in Space Technology," and it was published by Prentice-Hall as the first text in the country on this technology. In 1966, he was awarded the honor of Electronic Packaging Engineer of the Year, by the National Electronic Packaging Conference.

ED Note: W3VVS has come up with another top-grade program on a topic that could hardly be more timely. As shown in the program synopsis and biographical notes, which are reproduced above as received from Mr. Linden, we will be treated to an authoritative view of a new technology that promises an influence on modern civilization exceeding many times over, the effect of the transistor. Try not to miss this program.

1968 B.S.A. PADDLE-RAMA

On August 10 and 11, Phil-Monters again provided communications for the annual White Water Canoe Race sponsored by the Phila. Council of the Boy Scouts of America. For the uninitiated, Paddle-rama is a 2-day, 49 mile canoe race starting at Camp Weygadt, 4 miles south of the Delaware Water Gap, downriver to Easton on the first day, and continuing to Marshall's Island on the second. Six-man teams, 2 men to each 8 mile relay, are formed by interested scout, explorer, and girl scout troops. It is an exciting, competitive, gruelling, muscle-building grind which is strictly for young boys---and the birds. Prizes are awarded based on elapsed time and correct passage of several sets of gate buoys at each relay point. The registration of a team of girl scouts bent on showing the boys how it should be done enlivened the normally keen competition.

Phil-Mont mobiles receive timing information from scout officials at each relay point and transmit it to our air-conditioned communications van, W3QV/M, where Dave Way, chief timer, computes the net scores. Operations were handled on 3993 SSB, 29493 AM, 52.525FM and several C.B. WT's used by our teenage sons. A twisting river with it's attendant hills poses a neat problem in frequency planning and equipment location.

Early arrivals at Camp Weygadt set up W3QV/M as a monitor station and registration center just after supper on Friday evening. Lighting at the camp is a luxury---Air conditioned operating space was here-to-fore unheard of---and the temperature stayed near 90 until midnite. Tents were set up, cooking area and equipment laid out and the Phil-Mont compound was complete. At 6:30 AM, an inconsiderate friend woke QQH by starting the generator and the "Paddle-rama Pantry", W3YHV presiding, swung into action. Menu-- Juice, 2 eggs to order, toast/butter/jelly, coffee and milk. A quick knockdown and cleanup and the canoes took off at 1 minute intervals beginning at 9:00 AM. Our Sweep canoe, manned by W3NIP and Tom Conrad of North Hills, complete with outboard motor (we're not that young) and one watt Channel 1 rig, was last to take off. Relay points, where canoes change crews, were manned by K3UWO and W3QZO. Spotters for sequence and White Water areas were W3VVS and K3PHC assisted by Tom and Fred Bohlander, Rick Spencer, and Lew Conrad. W3QV/M rushed to Northampton C.D. headquarters in Easton and set up on all frequencies. The day passed without mishap and all hands were at Eddyside Park in Easton by 3:30 for a refreshing swim. 6PM and Mr. Bubeck was at it again---Spaghetti and meat balls, italian bread, iced tea, and layer cake furnished by Phyllis Thomas. Stuffed Phil-Monter was the order of the day. An evening's bull session, a cool night's sleep and---

PADDLE-RAMA (Cont'd)

Back at the breakfast table again. This time--pancakes and blueberry syrup, sausage, toast/butter/jelly, coffee and milk. 9AM and the canoes are off again. Same stations, same mobiles, no mishaps. Spotters, relay stations, lunches delivered for all who can't leave, lost mobiles, equipment breakdowns--all were a part of the proceedings. By 1:30 PM W3QV/M was at the finish line to provide public address facilities for the award ceremonies. The winners---Canoe No. 14, Troop 30, from Lower Makefield Twp. with a net time of 7:46. Try that the next time you want to take off a few pounds, girls. And speaking of girls, the crew of girl scouts who braved the river, ardent scouts, and the heat have promised to come back next year in greater strength and numbers. It should certainly liven things up even more.

Participating were K3UWO, W3VVS, K3PHC, W3QZO, W3JKH, W3BBB, K3CEE as mobiles; W3GIF and W3AHP as control operators; W3YHV as roving coordinator and chief cook and bottle washer; W3NIP and Tom Conrad in the Sweep canoe; Tom and Fred Bohlander, Rick and Duane Spencer, and Lewis Conrad as assistants to the spotters. Many thanks to all who came and helped and to those who didn't---you don't know what you're missin', old man....

de W3QQH

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NCS NEEDED FOR 10-ON-10

W3WXC, Chief Op of our Sunday morning net, is still searching for someone to assume NCS duties once a month. With the propensity our members have for sounding-off, surely this is a great opportunity to do the club a service and simultaneously obtain some measure of oral gratification! The vacancy in the NCS roster has existed for quite a while now, so howzabout stepping forward??

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BANQUET: TO BE OR NOT TO BE

Because his new job does not allow W3WXC the time he thought he would have, Dick has found it necessary to resign as Chairman of the Banquet Committee. At the same time, there is a pronounced degree of apathy on the part of just about the entire club toward taking any positive action for banquet preparations. It looks now as though the issue is dead. ED has discussed with Our Leader the possibility of an informal dutch treat affair with no tickets, no prizes, no speeches, and no preparations. The time and place would be announced shortly before the appointed time and a standard reservation made the night before the dinner. Think about it. Make your views known.

FOR THE LADIES

This will be another new feature of the BLURB by and for the ladies. The whole idea started last month with a suggestion that we publish recipes for the gals. (Unfortunately whoever presented the idea failed to identify himself and thus lost out on the \$1000 CASH PRIZE that might otherwise have been awarded in the Blurbarama Contest. Too bad.)

ED's XYL thought it was a good idea, but added that the column should not be limited only to recipes. Therefore in future issues we will attempt to present columns with varied content, but all slanted to interests on the distaff side. In keeping with ED's policy of "write sparsely and carry a big blue pencil" we will depend wholly on literary contributions from a different lady each month. In this way there should be ample variety in content, so gals: don't be bashful or wait for ED to ask you to do a column. If the kids are off to school or you have just had the misery of moving, or you are just back from an interesting trip, jot it down and send it via the OM or the Post Office to ED so the other ladies (and OM's for that matter) can share your experiences. Phyllis has something for a starter this month, so let's keep the ball rolling.

Here's an easy-to-make dessert which looks quite elegant and is really delicious. I serve this often when I have guests since it can be made ahead of time. Just add the whipped cream an hour or two before your guests arrive and keep it in the refrigerator.

Mix twenty plain Ritz crackers (crumbled) with $\frac{1}{2}$ cup chopped pecans and 1 teaspoon baking powder. Beat three egg whites stiff and add 1 cup sugar and 1 teaspoon vanilla. Fold the cracker mixture into the egg white mixture. Pack in buttered eight-inch pie pan at 350 degrees for thirty minutes. Cool, then spread with sweetened whipped cream and shave bitter chocolate over top.

This dessert has been a hit every time I've served it. A lot of people try to guess the ingredients, but so far no one has been successful.

Phyllis, W3QZO XYL

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NEW DIRECTORY OF MEMBERS

Editing of the new Directory is now complete and all of the entries have been passed along to Shelly Klein for typing. If all goes well they should be printed and ready for distribution by the September meeting. As many Directories as possible will be handed out at the meeting. Those who cannot attend the meeting will receive their Directory by mail.

The current list shows there are 114 Regular members and 11 Associate. There were revisions in 69 of the entries, and at this point ED would like to thank all those who returned the forms so promptly with modifications - it certainly made the job a lot easier to not have to hound people for up-to-date information. The only odd thing ED noticed in the new list is that we no longer have any members with calls beginning with the letter "M"; rather strange since at one time there were so many of them.

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EQUIPMENT FOR GHANA

Don't forget the Club's commitment to provide used equipment and components for the hams of Ghana. This does not cost PMRC a cent - the ARRL pays the freight tab from here to Hartford and then sends it on to Africa. It seems to ED that we need not limit contributions to hardware; many of us have books and magazines that we no longer use, but until Ohm's Law is repealed, they have great value for budding hams and might just as well go along with any equipment we can scrape up. If you have anything related to radio that would benefit the Ghannians, contact K3BJS who is Chief Collector, or W3QQH who is assisting Lou.

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RENEW ARRL MEMBERSHIP THROUGH PHIL-MONT

If you are a member of ARRL, or if you intend to join, you can do so by having your application processed through PMRC. To do so, simply send your renewal card or new application with a check for \$6.50 payable to Phil-Mont Mobile Radio Club, Inc. to the Treasurer, K3NYL. He will then deposit your check in our account and write a new one to ARRL for \$6.00. The fifty cent difference remains in the club's treasury, so with the number of ARRL men we have, there is a potential for considerable income that we are passing-by now.

W3ADV AND W3RCE WOW 'EM WITH RR TELEPHONE PROGRAM

Not content with presenting a routine discussion of the new telephone equipment to be used on high speed trains, ADV and RCE backed up their program with color slides AND a complete set of operating prototype equipment. The equipment operates in the range of 406-416 MHz. Each mobile unit can operate on any one of six channels, depending on train location and other calls in progress. Train location is sensed by pickup and logic equipment in conjunction with passive coils on the track. The cost of a call will be \$1.10 plus the local toll charge. With the development and maintenance costs, the phone company doesn't expect to make anything on the operation.

The highlight of the program was the mobile station, complete with telephone booth equipment, which was turned over to any who wanted to make a local call via the 400MHz link to the main station on the PSFS Building. Fred even supplied the \$1.10 to initiate the call (although he had the cash box rigged to return the dough each time the phone had been primed.) All coins go into the same slot, and the central office operator is informed of the amount by different tones that are transmitted from the mobile unit as money is put into the slot. Fred and Ed are certainly to be commended on their effort to bring us in actual touch with this high quality communication system. Now all we need are some high speed trains to communicate with.

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OFFICIAL BULLETIN NR 180 FROM ARRL HEADQUARTERS NEWINGTON
CONN AUGUST 1, 1968 TO ALL RADIO AMATEURS BT

Acting on petition of the Electronics Industries Association earlier this year for extensive revision of Novice license regulations, FCC last week proposed that anyone not licensed in the previous twelve months would be eligible for the Novice exam. At the same time, the Commission denied the EIA Amateur Radio Section requests to reduce code speed, grant ten meter voice privileges, reinstate two meter voice and make the Novice license five year term renewable. Details of the action, Docket 18266, will appear in September QST AR.

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MEMBER PROFILE: K3CEE

Bob has been an active ham since October 1957, has a RACES license, a Second Class commercial phone ticket, and is active in civil defense in Lower Merion Township -- when home, that is. He has been away to college in Milwaukee; he received his Associate in Technology and will obtain his B.S. at Milwaukee School of Engineering in November. Planning for position in communications sales engineering.

K3CEE started his radio club activities in the West Philadelphia Radio Association, then joined Phil-Mont. He has been, and still is, among the first five monitoring stations on Phil-Mont's Channel 1 (in case some of the SSB's have forgotten, that's 29.493 MHz). Rig is a job built by W3AK (Tex will be glad to hear it is still going strong) and of course modified by K3CEE. It has a pair of 807's modulated by another pair of the same. He monitors other frequencies also - I just might be prejudiced about Ch 1!

Seems Bob never does anything half-way. Joined Boy Scouts, went right up to Eagle Scout and assistant Scout Master. He attended Lower Merion HS and did considerable scull racing. LMH had three eight-man shells which were kept at the Bachelor Barge Club. Then in Milwaukee he became Dorm Councilor of a whole floor and finally head of all the house fellows - all 12 floors.

He is a Member of IEEE
hard-working Field Day expert
recipient of the Phil-Monter Award (1964)
former PMRC Secretary (1965).

Yes Sir! Bob keeps himself busy.

de Al, W3OWK

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FIELD DAY ADDENDUM

The letter below was written by W3QQH and accompanied an offer to write an article on Phil-Mont's approach to 1968 FD. The letter is so good ED thought everyone should have any opportunity to read it.

Field Day again this year why bother? Phil-Mont provides communications for projects a dozen times a year. But tradition is a strong impulse and with new rules, a new

FIELD DAY ADDENDUM (Cont'd)

incentive based on the original concept of Field Day, and a desire to be a part of all emergency communications, we were off and running. Location of the site was kept a deep dark secret until 2400Z, Friday June 21. Location was previously announced only as within 1½ hours driving time of center-city Philadelphia. Some reluctance was noted in obtaining operators due to the unknown site, but following announcement simultaneously on 3993 and 29493, immediate offers of operating time were available.

June 22, 1968 -- AM COM, our converted 54-passenger school bus, arrived at the site with internal 5 KW onan generator already running. 1900Z -- time to begin set-up. Ladder and antennas were removed from their compartments on the underside of the bus and screwed into their respective positions atop the vehicle. The 45 ft collapsible mast was installed in sockets mounted on the right side with halyard in place. The mast was extended to its full height and the inverted "V" antenna hauled up and ends anchored. At this point in the effort, 7 minutes after start, we are on the air for 1968 Field Day with an SB100 on 75-40, Elmac on 10, Dumont on 52.525, and Gonset on 2.

Rules committee take note---in less than 7 minutes, we are operating in the original concept of Field Day.

The rest was routine. Fortunately we had no equipment failures. All rigs ran reliably, the generator purred like a kitten. The only cloud in an otherwise clear sky was the failure of the integral air conditioning in the bus. We're certainly going to correct that.

That's the story --- 7 minutes set-up time and no equipment failures. Our score will not break any records, but it is respectable. The owner of our site property was left with a new insight into Amateur Radio, our members with a new respect for the equipment which their dues and efforts have helped put together into a reliable communications center, and our fraternity, in general, with another entry in the log of ARRL Field Days.

de W3QQH

SCOOP

W3EXY and XYL arrived home recently from Trinidad where Doc was on a working vacation for the Peace Corps. This was one of many such assignments for Doc, although it was the first time Miriam accompanied him. He was teaching and evaluating new volunteers for service in that area. Said it was hotter here than down there. Plans to return for completion of assignment at end of summer..If you want a real interesting QSO, latch onto Doc before he goes back...K3OJA was working the boys on their way back from MM at W3NIP... W3LEM is temporarily QRT due to moving...K3WQQ/5 was back home in July. He will be stationed at Ft. Wolters, Texas and expects to be active on 3993 SSB, both fixed and mobile, between Sept and March while attending Army Rotary Wing School...K3PHC now has a Swantenna installed on his new car-clips trees beautifully!...Uncle Sammy was pressed into service for BLURB mat delivery between QTH's of W3WXC where they were typed by Shelly, and W3QZO where the printing (?) is done... And speaking of printing, why does the reproduction start coming out perfect just before the press conks out? Last issue, exactly as many sheets of paper were ruined as were used for the whole BLURB edition...W3GIF going great with his Midland 1-watt walkie-talkie at Paddle-ramma. Works FB at home too...W3NIP is looking for a WD-11 for his Radiola 3. W3VVS almost swooned when he spied latter at Chuck's house.

K3DSM is moving to Devon and 540 foot elevation. He is going to need antenna help, so keep your ears open and lend a hand if you can. He also has an FM repeater (WA3BKO) going on 2 meters with a Harrisburg-Allentown-Phila link in the works. Gene has written a very interesting article on repeaters and would no doubt give you a copy for the asking...We understand Jerry Mathis has been on the sick list but is coming along now...W3AHP has been awarded a diamond pin at a lobster and steak dinner held at GE Space Tech Center, Valley Forge. This award was for Hal's contributions in the Thermodynamics Dept. where he has been working for the last several years, and is usually given only to engineers. Hats off to Hal...One of the entries in the Blurbarama Contest was: "The new Editor has a sharper needle than his predecessor!" This might win up to 1¢ in the contest... W3JKH is well enough along in his recovery from July's hospital visit to be elected V.P. of the Evergreen Soccer Club, of Fleetwood, Pa... Have you seen the Kass Kommunikator? The local emporium publishes rag with commercial ham, CB, and audio items and several non-commercial items about local ham activities. See W3AES or WA3ATP to get on mailing list..

SCOOP (Cont'd)

WA3DSP has moved QTH from Glenside to Richboro where he is on the waves and ready to talk...W3OWK and W3ZLE will both have mobile rigs by the time you read this if the OM can get moving. Guess what the freq will be...W3GIF is interested in getting on 146.94 FM... W3WXC completed construction of his Heathkit AM/FM rcvr and reports excellent results, especially with use of S-Meter for circuit checking before application of power to transistor ckts...W3DSG had an enjoyable vacation on Jamaica and in the midst of the political hoopla at Miami Beach...Take special note of the timely cover design this month by Sam, WA3CNI. He will be out of town for a while so the next cover will be different from usual...WA3DMR is back to work following blissful two week vacation.

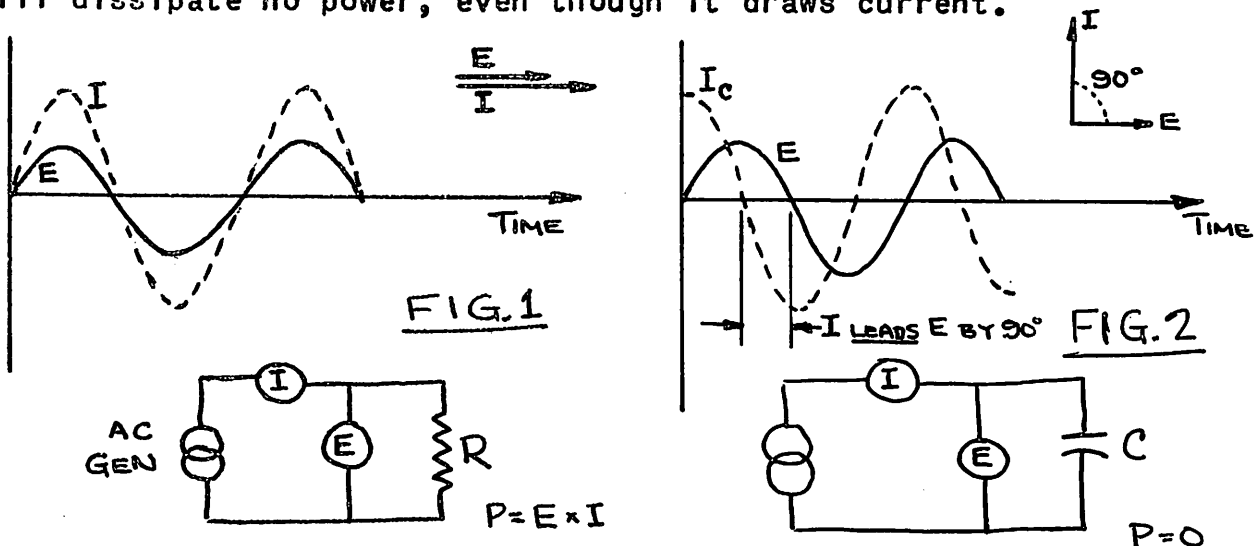
W3YHV has said goodbye to his old camper and hello to a new, slick model that has much more interior space. He has most of the innards for the new job completed. Bill ran up 22 kilometers on his first unit!...Locations for midmonth meetings are needed for December and January - at the least...Don't miss the integrated circuits program at the September regular meeting. ED plans to wear his IC cuff links and tie clip... W3QQH has had his 10 meter repeater receiver in operation and retransmitting on Channel 1 via a 2 meter link, with the CH-1 rig in North Hills. Should be ready to feed 10 meter xmtr at WFLN tower soon, since it has been proven sensitive in tests with signals from the out-lands...K3CEE home for a while before returning to school and November graduation... Anne Hecht expects to be residing at Park Towne House by this fall...Seen in Inquirer classified section: For Sale - Halicrafter Essex 110...W3ADV driving a new car...W3QQH and K3BJS have installed the "world's most expensive exhaust pipe" on the Comm Bus. They didn't bore out a solid titanium rod like you would expect on a Government job, but they did at least use genuine copper...The printer received rags from several sources (Anne Hecht, K3UWO and QQH) and can now clean up the printing press with ease(?)...Payoff of \$25 PMRC Bonds will begin soon. Money will be returned in order in which bonds were purchased unless anyone wants their money earlier, in which case it may be received immediately.. W3OWK has been on vacation, but should be back at the controls of RQZ when you read this...ED would like to thank the column contributors and the individuals who thoughtfully jotted news items down on the BLURB news sheet at meetings, for their time and effort in support of the new BLURB policy. The expanded coverage of club events and personal news could not be possible without this broad-based support.

TECHNIGRAM

POWER FACTOR

During the last FD contest the circuit breakers on the Comm Bus generator popped whenever the airconditioner was used. Although the culprit turned out ultimately to be high ambient temperature, which lowered the breaker's current rating, it was thought at the time that the airconditioner power factor was the cause of the trouble. This provoked lengthy discussions about power factor and its correction and laid bare a need for a little review of the subject.

When a resistor is connected across an a-c generator the line current is said to be "in phase" with the line voltage. That is, when the current is maximum, so is the voltage, and the power actually dissipated is $E \times I$ (See Fig. 1). Now suppose the resistor is removed and a capacitor is put across the line. Current will flow through the capacitor, but it will "lead" the voltage, i.e., when the current has reached a maximum, the voltage is still zero, as shown in Fig. 2. With a capacitor across the line you can measure line voltage and load current, but a wattmeter would register zero! A similar situation exists when an inductor is put across the line, except the current lags the line voltage as shown in Fig. 3. Again, although you would get E and I readings, a pure (no resistance or core losses) inductance will dissipate no power, even though it draws current.



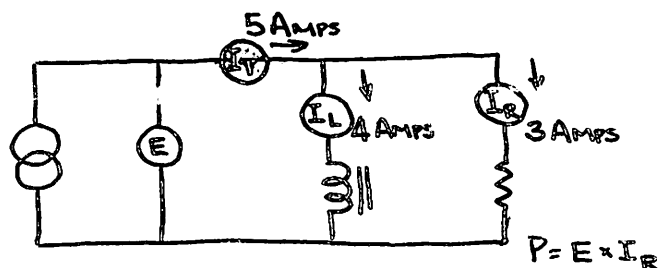
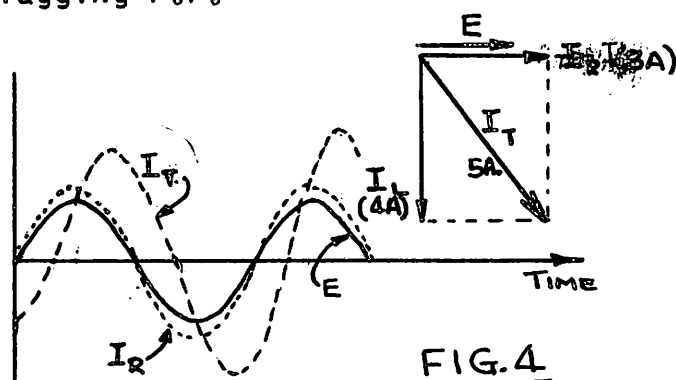
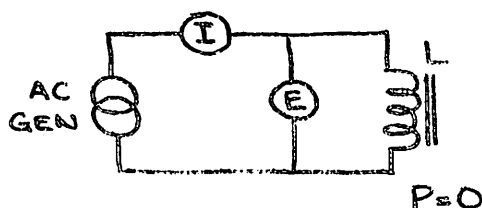
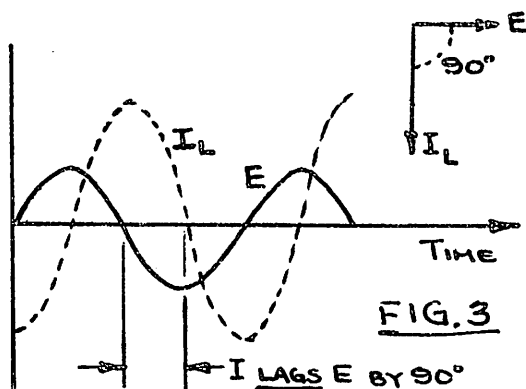
This brings us to the concept of real power and apparent power. Real power is what the resistor dissipates by getting hot, and ONLY a resistor or its equivalent will dissipate power in an electrical circuit. Apparent power is what you

POWER FACTOR (Cont'd)

get by multiplying line voltage by line current. In a resistive circuit real power and apparent power are equal, but in a reactive load the real power must always be less than the apparent power. Power factor is simply the ratio of real power to apparent power ($PF = \text{watts}/E \times I$) expressed as a percentage. Thus a resistor has a 100% power factor, and a pure inductor or capacitor has a 0% power factor. Combinations of R, L and C will have an intermediate power factor depending on their value and the frequency.

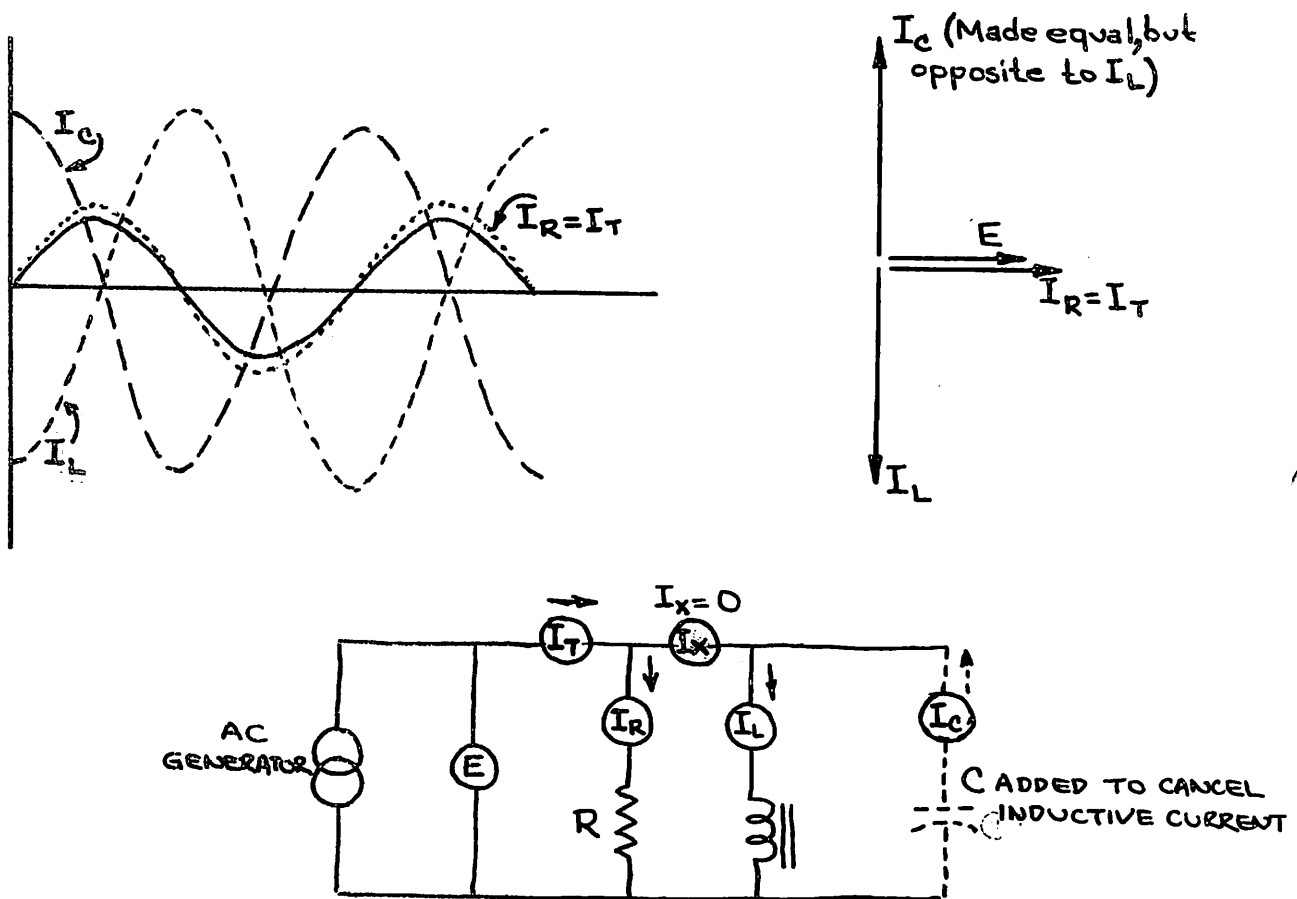
Now look at Fig. 4, which shows a combination resistive/reactive network somewhat like an airconditioner motor looks electrically. The total line current is composed of the current through the resistor (3 amps) and through the inductor (4 amps). The sum in this case is not 7 amps, however; because the currents are not in phase, the line current will be 5 amps - it is the vector sum of the two component currents. Power is dissipated only in the resistor, which consumes 400 watts. This represents power required to turn over the compressor and fan in the aircondx. The apparent power (line voltage X line current) is 500 watts. This circuit has a power factor of $300/500 = 0.6 = 60$ percent lagging.

The true power is actually what is going into useful work in the motor, and it is what the electric company bills you for. However, to supply you with 300 watts of true, useful, revenue-producing power the electric company's transmission system (or the PMRC put-put) has to have a 5 amp capacity - all because of the low power factor. The situation is so serious that large industrial users are penalized if the P.F. of their plant falls to a low value. In our case, the current rating of the put-put may be exceeded even though we are not obtaining much useful power from it. A lagging power factor usually prevails because most large machinery uses induction motors having low lagging P.F.



POWER FACTOR (cont'd)

Fortunately we can beat P.F. at its own game just by putting a capacitor across the line which causes a leading current to flow and cancel the inductive lagging component, as in Fig. 5. If just the right value of C is used, the P.F. can be restored to 100%, and all of the line current will go on to do useful work. In effect, we are resonating the load inductance and tuning for minimum current. Calculations show it will take 66 microfarads across the CommBus aircondx to obtain 100% P.F. Later on, when this is tried, we will report on the results. Until then, ED hopes this little summary will clear up some of the points surrounding our nemesis, power factor.



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